Navigating and Analyzing Large Economic Datasets

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Introduction to Census Data
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Identifying and Finding the Right Dataset
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Downloading and Accessing Data
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What is Census data

- Census data are official statistics collected systematically by governments to capture demographic, economic, and social information about the population.

- Typically collected at regular intervals

- Includes information on population size, age, gender, income, employment status, education, housing conditions, and more.

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Why do researchers use census data?

- Wide Coverage and Representativeness

- Reliability and Credibility:

- Supports a wide range of information that supports research in different topics

- Enables researchers to study changes and trends over time.

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Where to Find Census Data

- **Public Agencies**; for example:
  - **Bureau of Labor Statistics**: Employment, wages, unemployment rates (CPS, QCEW, LAUS)
  - **Census Bureau**: Population demographics, economic status, housing (ACS, Decennial Census, SIPP)
  - **Federal Reserve**: Financial data, consumer surveys (FRED, Survey of Consumer Finances)

- **International Organizations**

- **State government**: State-specific data such as employment, education, health, demographics

- **Academic Data Archives**: IPUMS

- **Direct Data Requests**

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How to identify information in the datasets

- **Geographical and temporal coverage**
  - National, regional, state, or local levels
  - Annual, quarterly, monthly, or one-time collection

- **Variable Definitions**

  Example: Age group categories, inflation-adjusted prices

- **Survey Design and Dataset Type**
  - Cross-sectional vs. longitudinal
  - Sample design (e.g., random, weighted)

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Tips for choosing the correct dataset

- Clearly figure out the main variables needed for your topic.

- Decide what geographic area (national, state, county) and time period you're interested in.

- Look for unique identifiers (like FIPS codes) to easily merge datasets.

- Check if the dataset is easy to access, user-friendly, and available in the format you prefer.

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Accessing the Data

- Option 1: Download Directly from Websites

- Option 2: Use R Packages and APIs.

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Things to Check When Downloading Data from Websites

- Make sure it's compatible with your tools (CSV, Excel, Stata, etc.).

- Check if the data has been edited or allocated.

- Be aware of Missing value

- Be aware of Time Coverage and Consistency

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Example 1: Extract Data from Ipums

- This will be a live walkthrough of how to search and extract data from IPUMS.
- **Goal of the Demo**:
  - Demonstrate how to collect data to study the relationship between years of education and income.
  - Walk through searching for relevant variables (e.g., education level, income).
  - Show how to select samples and submit a data extract.
- **Tip**: To use IPUMS, make sure you're logged in to your free IPUMS account before starting.

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Option 2: Use R Packages and APIs

- API (Application Programming Interface): In simple terms, an API is like a personal key that helps two programs connect and share information automatically

- Let's walk through an example of how to request an API key and use it to pull data from the BLS into R

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Example 1: Deschênes and Greenstone (2007)

- Title: The Economic Impacts of Climate Change: Evidence from Agricultural Output and Random Fluctuations in Weather

- Research Question focus: Links between farmland productivity and climate.

- Dataset:
  1. U.S. Census of Agriculture (county-level agricultural data)
  2. National Resource Inventory (for soil quality data)
  3. Parameter-Elevation Regressions on Independent Slopes Model (PRISM) (for Climate and Weather Data)

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Issue 1:Choosing Between 1-Year vs. 5-Year ACS Estimates

- Challenges: The ACS provides both 1-year and 5-year estimates. Which one is more appropriate for your project?

  - **Use 1-year estimates** for timely analysis, especially when evaluating recent changes (e.g., after a policy shift).
  - **Use 5-year estimates** when you need more reliable and stable data, especially for small populations or geographies.

Source: U.S. Census Bureau – American Community Survey (ACS) 1-Year vs. 5-Year Estimates. mySidewalk Knowledge Center.

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Issue 2: Variables/Years May Not Match Exactly

- Challenges: Sometimes the variables/years available in the dataset don't match exactly what we want due to how the survey design.

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  - Look at how similar papers or studies have addressed the issue.
  - For example, if you want "years of education" but only have a categorical variable for highest degree attained (e.g., grouped into intervals), some researchers recode it and assigning average years to each category.

(Henderson et al., 2011)

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Thank You for listening!

Questions and Discussion.

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Reference

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